

per cent. aqueous solution of corrosive sublimate instead of pure water. In this case the support for the culture plate should be glass or porcelain. Individual butter plates or saltcellars may be utilized.

Test-tubes five inches long by three-fourths of an inch wide are the most convenient. Instead of these, half-ounce bottles of elongate form and with wide mouths may be used with equally good results.

For inoculating or transferring needles for cultures, platinum is the best. When this is not attainable use brass wire. Heat the end of a slender glass rod five inches long until soft and thrust the wire into the glass for a handle. The wire may be three inches long. One of these should be hooked at the end.

Small sized glass tubing, suitable for drawing out into capillary pipettes, is indispensable for the inoculation of culture liquids through the cotton-wool stopper. This tubing can be found at any chemical laboratory, or may be had of any dealer in chemist's supplies. The same may be said of suitable pincers for handling the sterilized cotton. The latter should not of course be taken in the fingers when corking the test-tubes. The rubber cloth called by dentists "rubber dam," and to be had of them, is serviceable for capping cotton-stoppered tubes or bottles to prevent evaporation. Cut the rubber into suitable squares, and hold in place with a common elastic band. If test-tubes are used a beaker with a little cotton in the bottom serves well for holding, or a little basket can readily be made of screen wire cloth.—T. J. BURRILL.

EDITORIAL.

THE BOTANICAL SPIRIT has been so rampant and the botanists so numerous at the recent meetings of the American Association that there have been frequent suggestions of breaking up the biological section into its constituent parts, or at least of making a section of botany. It is urged that the interests of the present section are so diverse that it is already found convenient to group its papers by subjects for the convenience of those who have no desire to listen to the discussion of all biological subjects, and that botany and zoology have no more relation to each other than certain other distinct sections, and not so much as both to geology. There are several objections to making the proposed change that might be profitable to consider. In the first place, after botany and zoology have been separated they no more embrace single interests than the whole subject of biology, and what is to be the fate of the great field of physiology, so ably represented at the Buffalo meeting? In the second place, such a division, so far as botany is concerned, would simply convert the Botanical Club into a section of botany. This would change a pleasant, informal, social affair into a stiff, business-like, and somewhat heavy body; the small notes, the personal suggestions, the hundred things which are often far more personally beneficial than weighty papers, would be eliminated, and we would predict for the section of botany not a tithe of the attendance, interest, or enthusiasm enjoyed by the Botanical Club. In the third place, the very fact that

there is great diversity of interest in a section makes it a far more comfortable one to be associated with, as it does not compel a burdensome attendance, and gives chance to learn something of the other work of the Association, as well as to cultivate friendships. As it is, the section of biology burdens no one, excepting its officers, and yet one can hear everything he desires. Botanical papers are good things, but botanical papers morning, noon and night for days in succession would become tiresome even to botanists. Then there is great objection to excessive subdivisions in the matter of machinery and reference of papers. The machinery is already cumbersome enough, and even now papers are often doubtfully referred. For instance, such papers as that of Dr. Salmon, on immunity from contagious diseases, would be almost impossible to refer properly in the proposed division. Large in attendance and diverse in interest as the section of biology is, we believe it as yet gives the most convenient and complete arrangement of subjects and opportunities that can be made.

THE TIME being nearly at hand for putting together and summing up the results of the year's work, suggests the consideration of a class of public institutions, having more or less to do with botany, whose annual reports may properly be the subject of criticism: we have in mind the experiment stations dealing with agricultural and allied subjects. Their work is two-fold in character, and may accordingly be separated into the popular and the scientific. This distinction has been admirably defined and elucidated by Dr. Bessey, who points out the need of fostering both these branches of research. The former appeals to the man who desires to apply the knowledge toward securing increased commercial value for his labors, and the latter to the man who desires to apply it toward the establishment of some new principle or fact of universal accuracy. Experimental work is likely to furnish data for both purposes. But, as observed by Lord Rayleigh, in his Montreal address, "detached and ill-assorted facts are only raw material, and, in the absence of a theoretical solvent, have but little nutritive value." It is this want of digestion which does much toward rendering the majority of experiment station reports a conglomeration of details, explanations, facts, deductions, illustrations and hypotheses, which neither the commercial nor scientific man is disposed to work over into useable shape. A decided advantage might be gained by placing the undigested facts and other separable data by themselves, which would bring the directly applicable part of the report into readable compass. A division of the latter into the commercial and the scientific could then be made. The commercial part should be non-technical, and be a clear statement of the results of the year, in so far as they may be of value to the farmer, gardener, stock-raiser, etc. The scientific part should state with equal clearness and brevity the facts and deductions of permanent and universal value, and point out their relation to what has been previously established. Some such plan of making the material of these reports more available would add to the good reputation of the institutions and to their usefulness.